SYSTEMS AND METHODS FOR WIRELESSLY PROJECTING POWER USING IN-PHASE CURRENT LOOPS AND FOR IDENTIFYING RADIO FREQUENCY IDENTIFICATION TAGS THAT ARE SIMULTANEOUSLY INTERROGATED

Abstract of the Disclosure

An array of in-phase current loops are disposed adjacent to one another to define a surface and to define a virtual current loop at a periphery of the surface that produces a same direction virtual current while current in adjacent portions of adjacent current loops flows in opposite directions, to thereby wirelessly project power from the surface. It has been found according to the invention that the array of in-phase current loops that are disposed adjacent to one another to define a surface and to define a virtual current loop at a periphery of the surface that produces a same direction virtual current while current in adjacent portions of adjacent current loops flows in opposite directions, can provide acceptable power to RFID tags, while reducing the risk of violating regulatory constraints. A plurality of arrays of in-phase current loops also may be provided. The multiple arrays of in-phase current loops are disposed adjacent to one another to define a surface. Each array of in-phase current loops may be configured as was described above. N-ary tree traversals, push and pop commands and/or warp commands also may be used to efficiently identify tags.